REMARKS/ARGUMENTS

Claims 1-26 are pending in this application. Claims 1-26 stand rejected. Claims 1, 9, 17, 25, and 26 have been amended. No claims have been added or canceled in this paper.

Claim Rejections - 35 U.S.C. § 101

Claims 1, 9, 17, 25, and 26 stand rejected under 35 U.S.C. § 101 because the claim invention is alleged to be directed to non-statutory subject matter. For example, the Office Action states that:

> Claim 1 is not statutory because it merely
> recites a number of computing steps without
> producing any tangible result and/or being
> limited to a practical application (see MPEP
> 2106 IV.B.2.(b)). The definitions given in the
> specification for a system is broad enough so as
> to be directed to software per se, with no
> tangible result being produced in the claims.
> The claims should entail transformation of [an]
> article or material to a different state or
> thing with final results achieved "useful,

tangible, and concrete" using a

computer/hardware. The claims should be amended

so that some kind of output is required and/or

so a tangible result is produced.

This rejection has no basis in law or in the well-established

practice of the U.S.P.T.O. The U.S. Supreme Court has affirmed that

claims encompassing software embodiments are not excluded from

satisfying the statutory subject matter requirement of 35 U.S.C.

§ 101. For example, in *Diamond v. Diehr*, 450 U.S. 175 (1981), the

Court upheld the subject-matter patentability of a computer-

implemented method for operating a rubber-molding press.

Furthermore, the Federal Circuit Court of Appeals has held that

claims to computer-implemented methods may satisfy the statutory

subject matter requirement even if such methods do not perform a

physical transformation. *AT&T Corp. v. Excel Communications, Inc.*,

172 F.3d 1352 (Fed. Cir. 1999). In that case, the court stated that

"[t]he notion of 'physical transformation' can be misunderstood,"

because "*it is not an invariable requirement*, but merely one example

of how a mathematical algorithm may bring about a useful

application." *Id.* at 1358.

In *State Street Bank & Trust Co. v. Signature Financial Group,

Inc.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998), the Federal Circuit held

that an apparatus claim written in means-plus-function format and

directed to a computer embodying financial software satisfied the statutory subject matter requirement. For many further examples of precedent affirming the subject-matter patentability of method and apparatus claims encompassing software embodiments, see Gregory A. Stobbs, Software Patents (2d ed. 2000).

Furthermore, only last year the Board of Patent Appeals and Interferences issued a precedential opinion in *Ex Parte Lundgren*, Appeal No. 2003-2088, holding that there is no basis in law for rejecting a patent claim for failure to fall within the "technological arts." The claims on appeal in *Ex Parte Lundgren* were directed to a method of compensating a manager, without specifying any particular computer hardware, software, or other technology for performing the method.

Furthermore, the U.S.P.T.O.'s own examination guidelines for computer-related inventions (MPEP § 2106) do not recognize any exclusion for "software per se." Rather, the guidelines refer to cases, such as *State Street* and *AT&T*, that provide examples of method and apparatus claims encompassing software embodiments that the Federal Circuit has recognized as satisfying the statutory subject matter requirement. The Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility, published by the U.S.P.T.O. on October 26, 2005 (available online at

http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guideline s101_20051026.pdf), do not disturb this conclusion.

Merely for purposes of clarifying the claimed subject matter, however, claims 1, 9, 17, 25, and 26 have been amended to specify that both the "collector" and the "heap" are computer-implemented. This clarification receives support in the specification at, for example, pp. 24 -25.

The U.S. Supreme Court announced in Diamond v. Chakrabarty, 447 U.S. 303, 309 (1980) that statutory subject matter under 35 U.S.C. § 101 includes "anything under the sun that is made by man." The only judicially recognized exceptions to statutory subject matter are laws of nature, natural phenomena, and abstract ideas. *Diamond v. Diehr*, 450 U.S. 175, 185 (1981). The Office Action improperly carves out an exception to the broad scope of statutory subject matter for "software per se" without any basis in binding legal precedent or the U.S.P.T.O.'s own well-established practice. Applicant therefore traverses the rejection under 35 U.S.C. § 101 and respectfully requests that it be withdrawn.

More specifically, the Office Action states that claim 1 merely recites a number of computing steps without producing any tangible result. This rejection misunderstands the meaning of "tangible" as established by Federal Circuit precedent. For example, in *State Street Bank*, the Federal Circuit held that:

the transformation of data, representing

discrete dollar amounts, by a machine through a

series of mathematical calculations into a final

share price, constitutes a practical application

of a mathematical algorithm, formula, or

calculation, because it produces "a useful,

concrete and tangible result"—a final share

price momentarily fixed for recording and

reporting purposes and even accepted and relied

upon by regulatory authorities and in subsequent

trades. *State Street Bank* at 1373.

In other words, the transformation of *data*, representing *dollar amounts*, through a series of *mathematical calculations* into a *share price* can constitute the production of a result that is not only "tangible" but also "useful and concrete." Claim 1, as amended, goes further than transforming dollar amounts, by reciting a collector that reclaims non-referenced objects in a computer-implemented heap to organize that heap more efficiently. In *In re Lowry*, 32 F.2d 1579 (Fed. Cir. 1994), the Federal Circuit held that an invention "which provides an efficient, flexible method of organizing stored data in a computer memory" constituted statutory subject matter under 35 U.S.C. § 101. Claim 1 produces a similar useful, concrete, and tangible result and therefore qualifies as statutory subject matter under the holding of *In re Lowry*.

The Office Action further states that "[t]he claims should entail transformation of article or material to a different state or thing with final results achieved 'useful, tangible, and concrete" using a computer/hardware." This requirement flatly contradicts not only the holding in *AT&T v. Excel* that a physical transformation is not required, but also the above-referenced Interim Examination Guidelines, which state on p. 2 that "a practical application of a 35 U.S.C. § 101 judicial exception is claimed if the claimed invention physically transforms an article or physical object to a different state or thing, *or* if the claimed invention otherwise produces a useful, concrete, and tangible result." (Emphasis added.) The use of the word "or" makes clear that a physical transformation is not required. Rather, the claimed invention is directed to statutory subject matter *either* if it performs a physical transformation *or* if it produces a useful, concrete, and tangible result. For the reasons stated above, claim 1 recites subject matter that produces a useful, concrete, and tangible result.

The remaining rejected claims contain substantially similar relevant limitations. Applicant therefore respectfully requests that the rejection of claims 1-26 be withdrawn.
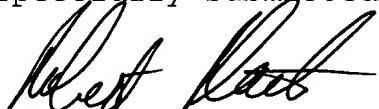
CONCLUSIONS

Any dependent claims not specifically referenced above incorporate the limitations of the independent claims from which they depend, and therefore are patentable for at least the same reasons.

If the Examiner considers the arguments presented herein not to be persuasive, the Applicant respectfully requests that the Examiner contact the Applicant to schedule an interview at a mutually convenient time.

If this response is not considered timely filed and if a request for extension of time is otherwise absent, applicant hereby requests any extension of time. Please charge any fees or make any credits, to Deposit Account No. 08-2025.

Respectfully submitted,

_____   5/30/2006
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